

ATTACHMENT A**Remarks**

Considering the matters raised in the Office Action in the same order as raised, claim 18 has been rejected under 35 USC 112, second paragraph, as being "indefinite." The objection here is well taken and the Examiner is thanked for the assistance provided in this regard. Claim 18 has been amended to change "claim 1" to -- claim 17 - - as was intended. With this change, there is antecedent basis for the phrase "optical switch" as the phrase is recited in parent claim 17. A minor correction has been made in claim 18 as well.

Claims 1-3, 7, 8, 11-13 and 16 have been rejected under 35 USC 102(e) as being "anticipated by Gorfinkel et al." In addition, claims 14 and 17 have been rejected under 35 USC 103(a) as being "unpatentable over Gorfinkel et al." These rejections are respectfully traversed although claims 1 and 17 have been amended to even more clearly define over the Gorfinkel et al patent.

In the Gorfinkel et al patent, the light being modulated travels laterally along or within a single GaAs layer (or a layer of GaAs embedded with multiple quantum wells). The single layer is bounded by AlGaAs material on the top and bottom thereof. The light has a long propagation length, allowing a gradual phase modulation across a long interaction distance, typically measured in mm. This type of modulator is known as being of a "waveguide" configuration and similarly to a long pipe, the light is modulated along the length of the GaAs layer.

In the present invention as claimed in claims 1 and 17, as amended, the light travels through, rather than along, each layer in the stack in a direction normal to, i.e., perpendicular or orthogonal to, the layer surfaces, rather than parallel to the layer surfaces. In a typical specific embodiment, the interaction distance between the light and stacked layers is measured in micrometers, rather than millimeters. The particular thickness of each layer determines the intensity and phase of the light spectrum which is transmitted and that which is reflected. This type of modulator is generally referred to as an "interference filter."

The difference between the present invention as claimed in amended claims 1 and 17 and the device of the cited reference is important. In the case of the Gorfinkel et

al patent, because the light is traveling within or along the waveguide layer, a precision layer thickness is not critical to the operation of the device. However, in the present invention as claimed in claims 1 and 17, the thickness of the layer and the number of layers are important to the operation of the device. Because the light passes serially through the layers, the layers can be selected so as to provide the phase and intensity characteristics required for a particular application. The device of the present invention is referred to herein as being a "bandpass" device because the device is transmissive within a particular spectral region and reflective on either side of this region. The device of the Gorfinkel et al patent is not a bandpass device but is simply transmissive according to the properties of bulk GaAs.

In summary, it is respectfully submitted that the Gorfinkel et al patent simply does not disclose or suggest a device wherein a multilayer stack is disposed perpendicular to the optical input signal to be phase modulated such that the optical signal passes serially through each dielectric layer of the plurality of dielectric layers making up the stack, as now claimed in claims 1 and 17. Accordingly, allowance of these claims and the claims dependent thereon is respectfully solicited.

It is noted that new claims 19, 20, 21 and 22 have been added. Claim 19 corresponds to allowable claim 4 rewritten in independent form, claim 20 to allowable claim 9 rewritten in independent form, claim 21 to allowable claim 10 rewritten in independent form, and claim 22 to allowable claim 15 rewritten in independent form, all of the claims in question being rewritten to include the base claim and any intervening claims. Thus, it is respectfully submitted that new claims 19-22 are allowable along with claims 1-18.

Allowance of the application in its present form is respectfully solicited.